WHAT IS CLAIMED IS:

1. A method of fabricating a light emitting device in which a light emitting layer portion and a current spreading layer respectively composed of a Group III-V compound semiconductor are once stacked on a single crystal substrate and an electrode for applying light emission drive voltage to the light emitting layer portion is formed, the method comprising:

a first vapor-phase growth step for forming the light emitting layer portion on the single crystal substrate by a metal organic vapor-phase epitaxy process; and

a second vapor-phase growth step, carried out after the first vapor-phase growth step, for forming the current spreading layer as an n-type semiconductor layer based on a hydride vapor-phase epitaxy process which is different from the metal organic vapor-phase epitaxy process.

2. The method of fabricating a light emitting device as claimed in Claim 1, wherein the current spreading layer is formed, using one or more selected from the group consisting of Si, S, Se and Te as the dopant, as an n-type $GaAs_{1-a}P_a$ ($0 \leqq a \leqq 1$) layer having a band gap energy larger than an optical energy corresponded to the peak emission wavelength of the light emitting layer portion.

3. The method of fabricating a light emitting device as claimed in Claim 2, wherein a carrier concentration of the dopant is adjusted within a range from $1 \times 10^{17}/cm^3$ to $5 \times 10^{19}/cm^3$.

4. The method of fabricating a light emitting device as

claimed in Claim 1, wherein in the second vapor-phase growth step the thickness of the current spreading layer is adjusted within a range from 5 m to 200 m.

5. The method of fabricating a light emitting device as claimed in Claim 1, further comprising a step of forming a high-concentration doped layer in a surficial area including the main surface on the electrode forming side of the current spreading layer, where the high-concentration doped layer having a carrier concentration of the dopant for generating majority carriers higher than that in the residual portion of the current spreading layer.

6. The method of fabricating a light emitting device as claimed in Claim 5, wherein the current spreading layer is formed, using one or more selected from the group consisting of Si, S, Se and Te as the dopant, as an n-type semiconductor layer, and the carrier concentration of the dopant is adjusted within a range from $1\times10^{18}/cm^3$ to $5\times10^{19}/cm^3$ for the high-concentration doped layer, and from $1\times10^{17}/cm^3$ to $1\times10^{18}/cm^3$ for the residual portion.

7. The method of fabricating a light emitting device as claimed in Claim 2, wherein the current spreading layer is designed to have a portion on the electrode forming side a high-GaAs-alloy-composition $GaAs_{1-a}P_a$ ($0\leqq a<1$) layer having a GaAs alloy composition 1-a larger than that in the residual portion, and to have a high-concentration doped layer, containing one or more selected from the group consisting of Si, S, Se and Te as the dopant, formed in the high-GaAs-alloy-composition $GaAs_{1-a}P_a$ layer.

8. The method of fabricating a light emitting device as claimed in Claim 1, wherein the current spreading layer and a portion of the light emitting layer portion in contact with the current spreading layer are composed of Group III-V compound semiconductors differing from each other in the lattice constants, and the current spreading layer has an MO layer portion formed by a metal organic vapor-phase epitaxy process in a portion in contact with the light emitting layer portion, and has an HVPE layer portion formed by a hydride vapor-phase epitaxy process in the residual portion.

9. The method of fabricating a light emitting device as claimed in Claim 1, further comprising a current blocking layer forming step for forming a current blocking layer which comprises a Group III-V compound semiconductor having a conductivity type different from that of the current spreading layer, as being buried in the current spreading layer; wherein

at least a portion of the current spreading layer covering the current blocking layer on the electrode side is formed in the second vapor-phase growth step.

10. The method of fabricating a light emitting device as claimed in Claim 8, further comprising a current blocking layer forming step for forming a current blocking layer which comprises a Group III-V compound semiconductor having a conductivity type different from that of the current spreading layer, as being buried in the current spreading layer; wherein

at least a portion of the current spreading layer covering the current blocking layer on the electrode side is formed in the second vapor-phase growth step.

11. The method of fabricating a light emitting device as claimed in Claim 9, wherein the current blocking layer forming step further comprises:

a third vapor-phase growth step for forming a first layer which composes a part of the current spreading layer and is composed of a first-conductivity-type Group III-V compound semiconductor, and a second layer which composes the current blocking layer and is composed of a second-conductivity-type Group III-V compound semiconductor, sequentially on the light emitting layer portion by a metal organic vapor-phase epitaxy process; and

an etching step for removing an unnecessary portion of thus-obtained second-conductivity-type compound semiconductor layer so as to leave a portion to be the current blocking layer; and

the second vapor-phase growth step is to form a third layer which comprises a Group III-V compound semiconductor having a conductivity type same as that of the first layer, so as to cover a portion of the second layer left unetched, by a hydride vapor-phase epitaxy process.

12. The method of fabricating a light emitting device as claimed in Claim 10, wherein the current blocking layer forming step further comprises:

a third vapor-phase growth step for forming a first layer which composes a part of the current spreading layer and is

composed of a first-conductivity-type Group III-V compound semiconductor, and a second layer which composes the current blocking layer and is composed of a second-conductivity-type Group III-V compound semiconductor, sequentially on the light emitting layer portion by a metal organic vapor-phase epitaxy process; and

an etching step for removing an unnecessary portion of thus-obtained second-conductivity-type compound semiconductor layer so as to leave a portion to be the current blocking layer; and

the second vapor-phase growth step is to form a third layer which comprises a Group III-V compound semiconductor having a conductivity type same as that of the first layer, so as to cover a portion of the second layer left unetched, by a hydride vapor-phase epitaxy process.

13. The method of fabricating a light emitting device as claimed in Claim 11, wherein both of the first layer and the second layer are composed of an Al-free, Group III-V compound semiconductors.

14. The method of fabricating a light emitting device as claimed in Claim 12, wherein both of the first layer and the second layer are composed of an Al-free, Group III-V compound semiconductors.

15. The method of fabricating a light emitting device as claimed in Claim 13, wherein all of the first layer, the second layer and the third layer are composed of $GaAs_{1-a}P_a$ ($0 \leqq a \leqq 1$) having a band gap energy larger than an optical energy corresponded to the

peak emission wavelength of the light emitting layer portion.

16. The method of fabricating a light emitting device as claimed in Claim 14, wherein all of the first layer, the second layer and the third layer are composed of $GaAs_{1-a}P_a$ ($0 \leqq a \leqq 1$) having a band gap energy larger than an optical energy corresponded to the peak emission wavelength of the light emitting layer portion.

17. The method of fabricating a light emitting device as claimed in Claim 15, wherein a fourth layer is formed between the first layer and the second layer, where the fourth layer being composed of a Group III-V compound semiconductor different from those composing both layers; and

in the etching step, the second layer is chemically removed by a selective etching using the fourth layer as an etch stop layer.

18. The method of fabricating a light emitting device as claimed in Claim 16, wherein a fourth layer is formed between the first layer and the second layer, where the fourth layer being composed of a Group III-V compound semiconductor different from those composing both layers; and

in the etching step, the second layer is chemically removed by a selective etching using the fourth layer as an etch stop layer.

19. The method of fabricating a light emitting device as claimed in Claim 17, wherein the thickness of the fourth layer is

adjusted within a range from 1 nm to 100 nm.

20. The method of fabricating a light emitting device as claimed in Claim 18, wherein the thickness of the fourth layer is adjusted within a range from 1 nm to 100 nm.

21. The method of fabricating a light emitting device as claimed in Claim 1, wherein the light emitting layer portion has a double heterostructure in which an n-type cladding layer, an active layer and a p-type cladding layer, all of which being composed of $(Al_xGa_{1-x})_yIn_{1-y}P$ (where, $0 \leqq x \leqq 1$ and $0 < y \leqq 1$) containing two or more Group III elements, are stacked in this order as viewed from the electrode side.

22. The method of fabricating a light emitting device as claimed in Claim 21, wherein the single crystal substrate is an off-angled substrate, and the single crystal substrate is a GaAs single crystal substrate having the main axis tilted by an angle within a range from 1° to 25° with respect to the <100> direction.

23. The method of fabricating a light emitting device as claimed in Claim 22, wherein the single crystal substrate is a GaAs single crystal substrate having the main axis tilted by an angle within a range from 10° to 20°.

24. The method of fabricating a light emitting device as claimed in Claim 23, wherein, in the second vapor-phase growth step, the current spreading layer composed of $GaAs_{1-a}P_a$ ($0 \leqq a < 1$) is grown

at 640°C to 750°C by a hydride vapor-phase epitaxy process.

25. A light emitting device having a light emitting layer portion and a current spreading layer, respectively composed of a Group III-V compound semiconductor, once formed on a single crystal substrate by epitaxial growth, wherein:

the light emitting layer portion is formed by a metal organic vapor-phase epitaxy process; and

the current spreading layer, on the light emitting layer portion, is formed as an n-type semiconductor layer by a hydride vapor-phase epitaxy process which is different from the metal organic vapor-phase epitaxy process.

26. The light emitting device as claimed in Claim 25, wherein the portion of the current spreading layer formed by a hydride vapor-phase epitaxy process has a C concentration of $7 \times 10^{17}/cm^3$ or lower.

27. The light emitting device as claimed in Claim 25, wherein the current spreading layer and a portion of the light emitting layer portion in contact with the current spreading layer are composed of Group III-V compound semiconductors differing from each other in the lattice constants, and the current spreading layer has an MO layer portion formed by a metal organic vapor-phase epitaxy process in a portion in contact with the light emitting layer portion, and has an HVPE layer portion formed by a hydride vapor-phase epitaxy process in the residual portion.

28. A light emitting device having a light emitting layer portion and a current spreading layer respectively composed of a Group III-V compound semiconductor, and an electrode for applying light emission drive voltage to the light emitting layer portion, once formed on a single crystal substrate by epitaxial growth, wherein:

the light emitting layer portion has a double heterostructure in which an n-type cladding layer, an active layer and a p-type cladding layer, all of which being composed of $(Al_xGa_{1-x})_yIn_{1-y}P$ (where, $0 \leqq x \leqq 1$ and $0 < y \leqq 1$) containing two or more Group III elements, are stacked in this order as viewed from the electrode side, and the n-type cladding layer is composed of n-type $(Al_xGa_{1-x})_yIn_{1-y}P$ containing one or more selected from the group consisting of Si, S, Se and Te as the dopant;

the current spreading layer is formed, using one or more selected from the group consisting of Si, S, Se and Te as the dopant, as an n-type $GaAs_{1-a}P_a$ $(0 \leqq a \leqq 1)$ layer having a band gap energy larger than an optical energy corresponded to the peak emission wavelength of the light emitting layer portion; and

the current spreading layer has a C concentration lower than that in the n-type cladding layer.

29. The light emitting device as claimed in Claim 28, wherein the current spreading layer has an MO layer portion formed by a metal organic vapor-phase epitaxy process in a portion in contact with the light emitting layer portion, and has an HVPE layer portion formed by a hydride vapor-phase epitaxy process in the residual portion.

30. The light emitting device as claimed in Claim 27, wherein the thickness of the current spreading layer is adjusted within a range from 5 m to 200 m.

31. The light emitting device as claimed in Claim 28, wherein the thickness of the current spreading layer is adjusted within a range from 5 m to 200 m.

32. The light emitting device as claimed in Claim 27, wherein a high-concentration doped layer is formed in a surficial area including the main surface on the electrode forming side of the current spreading layer, so as to have a carrier concentration of one or more selected from the group consisting of Si, S, Se and Te as the dopant higher than that in the residual portion of the current spreading layer.

33. The light emitting device as claimed in Claim 28, wherein a high-concentration doped layer is formed in a surficial area including the main surface on the electrode forming side of the current spreading layer, so as to have a carrier concentration of one or more selected from the group consisting of Si, S, Se and Te as the dopant higher than that in the residual portion of the current spreading layer.

34. The light emitting device as claimed in Claim 32, wherein the current spreading layer is formed, using one or more selected from the group consisting of Si, S, Se and Te as the

dopant, as an n-type semiconductor layer, and the carrier concentration of the dopant is adjusted within a range from $1\times10^{18}/cm^3$ to $5\times10^{19}/cm^3$ for the high-concentration doped layer, and from $1\times10^{17}/cm^3$ $1\times10^{18}/cm^3$ for the residual portion.

35. The light emitting device as claimed in Claim 33, wherein the current spreading layer is formed, using one or more selected from the group consisting of Si, S, Se and Te as the dopant, as an n-type semiconductor layer, and the carrier concentration of the dopant is adjusted within a range from $1\times10^{18}/cm^3$ to $5\times10^{19}/cm^3$ for the high-concentration doped layer, and from $1\times10^{17}/cm^3$ $1\times10^{18}/cm^3$ for the residual portion.

36. The light emitting device as claimed in Claim 32, wherein the current spreading layer is designed to have a portion on the electrode forming side a high-GaAs-alloy-composition $GaAs_{1-a}P_a$ ($0\leqq a<1$) layer having a GaAs alloy composition 1-a larger than that in the residual portion, and to have a high-concentration doped layer, containing one or more selected from the group consisting of Si, S, Se and Te as the dopant, formed in the high-GaAs-alloy-composition $GaAs_{1-a}P_a$ layer.

37. The light emitting device as claimed in Claim 33, wherein the current spreading layer is designed to have a portion on the electrode forming side a high-GaAs-alloy-composition $GaAs_{1-a}P_a$ ($0\leqq a<1$) layer having a GaAs alloy composition 1-a larger than that in the residual portion, and to have a high-concentration doped layer, containing one or more selected from the group consisting of

Si, S, Se and Te as the dopant, formed in the high-GaAs-alloy-composition $GaAs_{1-a}P_a$ layer.

38. The light emitting device as claimed in Claim 34, wherein the current spreading layer is designed to have a portion on the electrode forming side a high-GaAs-alloy-composition $GaAs_{1-a}P_a$ ($0 \leqq a < 1$) layer having a GaAs alloy composition 1-a larger than that in the residual portion, and to have a high-concentration doped layer, containing one or more selected from the group consisting of Si, S, Se and Te as the dopant, formed in the high-GaAs-alloy-composition $GaAs_{1-a}P_a$ layer.

39. The light emitting device as claimed in Claim 35, wherein the current spreading layer is designed to have a portion on the electrode forming side a high-GaAs-alloy-composition $GaAs_{1-a}P_a$ ($0 \leqq a < 1$) layer having a GaAs alloy composition 1-a larger than that in the residual portion, and to have a high-concentration doped layer, containing one or more selected from the group consisting of Si, S, Se and Te as the dopant, formed in the high-GaAs-alloy-composition $GaAs_{1-a}P_a$ layer.